

A REGIONAL ANALYSIS OF INSTITUTIONAL FRAMEWORK ON CAPITAL MARKET BEHAVIOUR: Evidence from Selected African Countries

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ABSTRACT

The strategic importance of capital market development in contemporary economic structures cannot be overemphasized. Various documented studies have buttressed the quintessential indispensability of a developed domestic capital market as a springboard from which real national economic growth can be launched. While a host of those studies are focused on developed economies, quite a few others investigate the institutions-capital market performance analysis in developing economies. However, documented studies that investigate regional dynamics (especially in Africa) are rare. Using data generated from various sources from 1980 to 2016 in a series of estimations, this study re-modelled the institutional-capital market development linkage model in Africa. Empirical findings established the role of institutional adequacy, most especially general public management, in the development of capital in Africa, of which the role of efficient macroeconomic management is noteworthy, to capital market efficiency in Africa.

JEL classification: C21, E22, E60, F21

1. Introduction

The role of institutional efficiency in the development of capital markets is well documented in literature. Studies suggest that institutional framework plays a

significant role in the functionality of domestic capital markets in developed and developing economies alike (La Porta et al., 2000). According to these authors, the strength of the regulatory infrastructure is a clear indication of political maturity, and hence an indispensable indicator of efficient market supervision. Further studies suggest that institutional framework is a cornerstone that anchors the functionality of the entire capital market system. As such, the efficiency of the framework is an important motivation for the participation of local and international investors on the capital market platforms of a domestic market (Levine, Loaya and Beck, 2000).

In addition, the weak capital market development trend being experienced in most developing economies (Chousa, Vadlamannati and Tamazian, 2008; Hailu, 2010; Vladimir, Tomislav and Irena, 2013) is largely attributed to the institutional deficiency that has pervaded those economies over a long period of time (Ayaydin and Baltaci, 2013). For instance, state-owned banks are popularly known for inefficient allocation of credit, as a result of government ownership and intervention (Mookerjee and Yu, 1995). Citing the specific example of Russia, Gerschenkron (1962) observed that low savings and moral hazards hindered the capability of banks from attracting the required levels of funding that would have influenced economic performance. The impact of government intervention in a way that breeds corruption, opportunistic behaviour and inefficiency in the management and appropriation of financial resources was documented by Gerschenkron (1962). According to this author, these are the main reasons why banks in developing economies are less developed and attenuated to perform the expected intermediation roles.

This argument was further emphasized by Mookerjee and Yu (1995). These authors contend that inefficient allocation of credit, which was conspicuous in China (and other emerging economies) at the time of their study, led to economic crises like budget deficits, inflation, and macroeconomic instability. They contend that by inefficiently directing credit to state-owned enterprises (SOEs), the central bank and other sectoral banks pacify the political agenda of the government at the expense of national economic interests and sustainable growth agenda.

In the African context, various studies have documented the role of capital market development on economic fundamentals. For instance, Alfaro et al. (2004) investigated the role of capital market dynamics on economic growth in

some African countries where the role of capital market development was identified as important, and a slight reference to institutional framework was made. However, a fault in that study is that it included countries without viable capital markets (such as The Gambia), while some of the largest capital markets on the continent (such as Nigeria) were ignored. This study fills these academic lacunae.

2. Capital Market Development in Major African Economies

Most of the countries in Africa are struggling to emancipate themselves from the devastation of poverty and its antecedent social maladies. Studies suggest that a shortfall in capital supply is the main culprit for low economic growth in Africa (Allen and Ndikumana, 2000; Asiedu, 2002; Adams, 2009). Although portfolio investment is an important component of the stock of foreign capital flow, the fact that it is easily reversible negates its relevance to long-term investment, which is needed to grow an economy in a sustainable manner, compared to long-term capital commitment in the form of foreign direct investment (FDI). This motivates the preference for FDI over foreign portfolio investment (FPI) in most developing countries (Meyer, 2004; Hill and Hult, 2018).

The realization that the domestic economy is not viable enough to generate the requisite funds to grow the economy in a manner that reduces poverty levels confirms the need for the strategic interventions by African leaders. For decades, African leaders have continuously initiated regulatory reforms to attract more inflow of foreign capital, especially in the form of FDI. However, this effort has not yielded the anticipated results mainly due to poor local capital market development as opposed to the reality in other developing countries (Chousa, Vadlamannati and Tamazian, 2008; Vladimir, Tomislav and Irena, 2013), and institutional deficiency (Bénassy-Quéré, Coupet and Mayer, 2007; Ayaydin and Baltaci, 2013).

3. Capital Market Dynamics in Selected African Countries

This study covers six countries in Africa: Egypt, Kenya, Morocco, Nigeria, South Africa and Tunisia. The sampled countries are those with established equity platforms before 1980. Furthermore, the choice of the six countries (later

divided into regions) is influenced by their position as regards capital market formation/structure in the regions. For instance, South Africa accounts for more than 80 percent of the total market capitalization in Southern Africa. Nigeria occupies a similar position in West Africa, Kenya in East Africa and the remaining three countries combined in North Africa. To understand the intricacies of capital market development in the sampled countries, it is considered important to review existing literature on the dynamics of capital market development in the countries. In the paragraphs that follow, the review of the countries will be done in alphabetical order.

Egypt

The Egyptian capital market is considered one of the oldest capital markets in the world, and about the oldest in the North African region. The development of capital markets (both securities and exchange markets, and the banking sector) dates back to the 19th century in Egypt. More precisely, the securities and exchange markets in Egypt date back to 1888, when the Alexandria Exchange platform was established. This was closely followed by the establishment of the Cairo Exchange in 1903. From their inceptions, these two securities and exchange platforms were actively utilized by investors that continued to grow in number and capitalization.

The continued growth in the number of listed firms on the platforms, coupled with the increasing capitalization, eventually led to these platforms being ranked in the top five global exchanges in the 1940s. However, government intervention in the form of market regulation introduced in the mid-1950s hindered the functionality of these platforms, rendering them redundant, until new forms of reforms were adopted in the 1990s. The reforms of the 1990s precipitated the rejuvenation of activities on these platforms and triggered growth that continued until 2011 when the “Arab Spring” debacle precipitated the present instability that pervades the country.

The development of the banking sector in Egypt slightly precedes the establishment of the securities and exchange market platform. The first bank in Egypt (The Bank of Egypt) was established in 1856 with its headquarters in London. The bank established its main office in Alexandria, and it also had a branch office in Cairo for easy banking activities. This bank was established to perform the principal role of a central bank, especially given the intensive

commercial activities between Egypt and Western countries, which were dominated by cotton production and sales. The establishment of the Bank of Egypt was later followed by the establishment of the National Bank of Egypt (NBE), which is largely regarded as the oldest commercial bank in Egypt. It was established on 25 June 1898.

The full-fledged Egyptian central bank was established in 1961 with its headquarters in Cairo (Central Bank of Egypt, 2018). Although, there were so many commercial banks that performed various capital market roles, the establishment of a regulatory body in the form of an apex bank became inevitable after political independence. The Law 117/ 1961 that established the central bank also provided for the nationalization of all banks in Egypt.

The capital markets in Egypt are regulated by the Egyptian Financial Supervisory Authority (EFSA). EFSA officially began operations on 1 July 2009, when it replaced the Capital Market Authority (CMA) – the former capital markets regulator that was established in 1992 under the Capital Markets Law No. 95 of 1992.

Kenya

Kenya has witnessed a noticeable level of capital market development over the decades. Being the oldest, largest and most vibrant capital market in East Africa, equity trading began in Kenya in the 1920s when the country was still under British rule (Nairobi Securities Exchange, 2018). To formally coordinate all trading activities, the Nairobi Securities Exchange (NSE) was established in 1954 as a voluntary association of stockbrokers. Although various equity trading activities began before Kenya's independence in 1963, these activities were restricted to the colonial masters who were purely Europeans.

The government intervened in various ways to dispel the scepticism of traders on the platform with little success, until 1988 when the government acquired 20 per cent stakes in the country's commercial banks. This process did not only increase the capitalization of the NSE, but also increased trading activities on the platform (Ngugi, Amanja and Maana, 2009). The government recognized the need to improve economic growth through capital market efficiency, especially by inculcating the thrift culture in Kenyans. To that effect, the government established the Capital Markets Authority (CMA) in 1988. This body was charged with the complimentary responsibility (with the Central Bank)

of providing the enabling environment necessary to improve capital efficiency in the country. Despite this intervention, activities on the stock market remained low.

To further address the inefficiency that characterized the equity market, the government amended the Capital Markets Act in 2000 (The Capital Markets Act, 2000). This amendment was aimed at improving access to finance. The amendment provided for alternative sources of long-term financing for the economy, particularly as the commercial banks were incapacitated to garner the requisite funding to enhance economic development. This Act was further amended in 2003 to charge both the Capital Markets Authority (CMA) and the Nairobi Stock Exchange (NSE) towards creating a robust regulatory environment that would propel the NSE towards being the most efficient equity market in the region, Africa and the world at large.

The other component of the capital market in Kenya (the banking sector) is also the most developed in East Africa. Banking activities in Kenya date back to 1863 when the National Bank of India set up an offshore office in Zanzibar. This offshore office was meant to provide banking services for the entire East African Protectorate under British rule. However, the sporadic increase in commercial banking activities suggested the need to establish a commercial bank that would specifically target the East African markets. As a result, the National Bank of India established as its appendage the Kenya Commercial Bank in 1896. The bank's Kenyan branch opened in Nairobi in 1904.

The drive to achieve better financial deepening through capitalization necessitated the merger agreement with Grindlays Bank in 1957 (The Kenya Commercial Bank, 2004) and the government acquired controlling shares in the bank in 1970, which led to the name being changed from the National Bank of India to Kenya Commercial Bank. Quite a number of other commercial banks also sprang up in the 1900s. For instance, Standard Chartered Bank Kenya Limited was established in 1911, closely followed by the establishment of Barclays Bank of England, which established its Kenyan branch in 1917.

The need to strategically and centrally coordinate the activities of financial institutions in Kenya led to the establishment of the Central Bank of Kenya in 1966 under the Central Bank of Kenya Act of 1966 (Central Bank of Kenya, 2018). The Central Bank of Kenya, alongside the Capital Markets Authority, jointly regulate the operational environment of the capital market in Kenya, and

creating an enabling environment to facilitate capital market efficiency is constitutionally central to their roles.

Morocco

Capital markets in Morocco have gone through a series of reforms over the past decades. While some of the efforts to improve the efficiency of the markets have been successful, a number of other interventions have failed due to institutional inadequacies and regulatory weakness.

The first commercial bank in Morocco, Compagnie Française de Crédit et de Banque (CFCB) was established in 1904. Having gained notable commercial grounds in Algeria, the French international bank, Compagnie Française de Crédit et de Banque, extended its Algerian footprint to Morocco as the first commercial bank in the North African country, under the trading name, Compagnie Algérienne de Crédit et de Banque (CACB) (*Financial Times*, 2014). The bank ultimately changed its name to Wafabank in 1985. As a result of the increasing demand for banking services in Morocco, the Banque Commerciale du Maroc or B.C.M. was founded as a purely domestic bank in 1911, with its headquarters in Casablanca. Riding on the laurel of its success in household banking in the country, B.C.M. eventually acquired control and effective ownership of Wafabank in 2003, and the new amalgamation began to trade as Attijariwafa Bank in January 2004 (MENAFN Press, 2014). Today, Attijariwafa Bank is the largest commercial bank in Morocco and the third largest bank in Africa (*Financial Times*, 2014).

The State Bank of Morocco was established in 1906 as the outcome of a world reformation conference that was held in Casablanca between January and April of that year. However, the bank only attained issuance status in 1911, shortly before the commemoration of the Protectorate Treaty in 1912, which eventually curtailed the functionality of the bank as a national central bank. The central banking system was rejuvenated in 1959, after the political independence of Morocco. The Central Bank was then renamed Bank Al-Maghrib with the full status of a national central bank.

The developmental process of equity market in Morocco follows the same trend as the other North African countries. The Casablanca Bourse was established in 1929 under the auspices of “Office de Compensation des Valeurs Mobilières”, which translates as “Office for Clearing of Transferable Securities”

(The Casablanca S.E, 2018). Given that the banking sector had been well-established before the equity market platform, the growing need for risk diversification and exploitation of an alternative source of funding culminated in widespread reception of the equity market. The attractiveness of the equity platform to domestic investors and the growing interest in stock market investment precipitated the 1967 capital market reforms that became essential to reinforce the legal and technical frameworks of the market, albeit ineffectually (The Casablanca S.E, 2018). A series of reforms followed in 1989 and 1993 in order to continuously improve on market efficiency.

However, these series of reforms adopted by the Moroccan government failed to yield the anticipated dividends as a result of institutional weaknesses. According to Gentzoglani (2007), corruption, disorganization and lack of respect for the rule of law were the main culprits for the lingering inefficiencies in the Moroccan equity market, just as in many other African markets.

Nigeria

Nigeria's capital market is one of the biggest in Africa. Owing to the country's history of political and institutional instabilities, the capital market has undergone some notable reforms albeit with minimal accolade of success. The first commercial bank (African Banking Corporation) was established in Nigeria in 1892, with its headquarters in Lagos (National Bureau of Statistics, 2018). In 1894, the Bank of British West Africa took over the African Banking Corporation. The Bank of British West Africa remained the only bank in Nigeria until 1912 when Barclays Bank (now Union Bank) was set up.

To further banking sector efficiency in the country, the British colonial government established the West African Currency Board in 1912 (Central Bank of Nigeria, 2018). The establishment of the Board was mainly intended to further facilitate exports financing by empowering the Board to issue a West African currency that is convertible to the British pounds sterling. The establishment of the Board and the introduction of the local currency led to rapid expansion of banking activities in the country, which advanced the creation of more foreign banks in the country. By 1952, three foreign banks (Bank of British West Africa, Barclays Bank, and British and French Bank) and two locally-owned banks (National Bank of Nigeria and African Continental Bank) were in operation. In furtherance of a series of reforms, the banking sector ordinance of 1952 was

promulgated to regulate some of the critical activities in the banking sector, especially to accord indigenes the privilege to participate in banking activities. In addition, the Central Bank Act was promulgated in 1958 to further the efficiency of the banking sector. The Act was fully implemented on 1 July 1959 to accord the Bank a full institutional status (Central Bank of Nigeria, 2018).

However, the efficiency of the banking sector in Nigeria was highly affected by the Indigenisation Decree of 1973 (which required 40 per cent state-ownership of foreign investments in the country), as well as the Nigerian Enterprises Promotion Decree of 1976 that required state-ownership of 60 per cent of foreign investments in Nigeria (Austin and Uche, 2007). These sets of policy initiatives affected not only the capital structure of the banks but their operational processes as well. To forestall the possible effects of market failure on the banking sector, the Nigerian Deposit Insurance Corporation (NDIC) was established in 1988. The corporation was created to advance investor confidence in banking in order to improve domestic savings.

The establishment of equity trading platforms began in the country in 1960, when the Lagos Stock Exchange was established. The bourse changed its name to Nigerian Stock Exchange (NSE) in 1977. After its inception, the Central Bank of Nigeria (CBN) immediately established the Capital Issues Committee in 1962 as the advisory committee to the CBN on stock listing process. Shortly thereafter, the supervision of the equity market was added to the brief of the committee, which changed its status to a standing commission in 1973 – the Capital Issues Commission (Olowe, 1999; Adelegan, 2004).

The growing increase in capital market activities and the renewed government commitment to improve the market's efficiency necessitated the establishment of the Securities and Exchange Commission in 1979 under the Securities and Exchange Commission (SEC) Decree No. 71 of 1979. This major regulatory intervention pivoted the accession of the Nigerian equity market to the International Organisation of Securities Commissions (IOSCO) in June 1985 (Securities and Exchange Commission, 2018).

It must be pointed out, however, that the strength of the regulatory framework has been challenged on various occasions in recent times. For example, there were increasing allegations of insider trading in the Nigerian banking industry and low capitalization that eventually prompted the re-capitalization agenda of the government in 2004. Furthermore, there were

widespread allegations that the bank failure (that resulted in the stock market collapse of about 70 per cent in 2008-2009) (Sanusi, 2010) was orchestrated by the opportunistic behaviour and fiduciary risks in the banking sector.

South Africa

The architecture of banking activities in South Africa revolved around various business interests, essentially between the trading interests of caravan merchants from the East and the discovery of mining resources in the country. Bank formation also took a toll along government colonial arrangements. Commercial banking activities in South Africa date back to 1836 when the Cape of Good Hope Bank was founded. Between 1836 and 1861 the total number of banks in the Cape of Good Hope alone amounted to 30.

On another front, the Eastern Province Bank was formed in Grahamstown in 1837 (Mostert et al., 2007). The bank was established to intermediate in the business interests of Indian merchants that were predominant in wool produce (First National Bank, 2018). Until about 1870, the economy of South Africa was almost entirely dominated by agriculture. Mining assumed prominence in the 19th century when minerals like gold and diamonds were discovered (Zezeza, 1993). With the determination to have a controlling stake in commercial banking activities, and to fund the agricultural sector, the government of South Africa created the National Bank of the South African Republic Limited through a concession agreement in 1891.

Wool exports faced various challenges during the 1870s in South Africa especially institutional challenges, which resulted in the bank being acquired by an Indian commercial bank – Oriental Bank Corporation (OBC) in 1974. The OBC was an overseas bank established in conjunction with British colonial powers to facilitate currency exchanges and transfers between the West (mainly England) and the East (Nishimura, Suzuki and Michie, 2012). However, recession precipitated a shortage of good bills exchange being drawn between Britain and Asia and the bank's problems worsened with the drop in prices of silver and the decline in Chilean government bonds. The increasing operational problems eventually forced the Oriental Bank Corporation to withdraw from South Africa and thus the Bank of Africa was formed in 1879 to take over the OBC's business in South Africa (Nishimura, Suzuki and Michie, 2012).

Meanwhile, in 1854, another commercial bank was formed in the Natal Colony – Natal Bank. The bank was formed to intermediate in the sugar industry that was thriving in the colony at the time. The bank eventually became a major lender to sugar planters at exorbitantly high interest rates, which motivated the English capitalists to aggressively promote their shylock debt trading through the banking platforms (Theal, 2010). Some of the new entrants to the banking industry in the Colony were: Commercial and Agricultural Bank of Natal, which was established in 1862; Colonial Bank of Natal, founded the same year; and Standard Bank of British South Africa which started business in Port Elizabeth in 1863 (Standard Chartered, 2018).

Various other commercial banks, such as London and South African Bank, Transvaal Imperial Bank, Netherlands Bank of South Africa, African Banking Corporation, were established in the country. During that period, the National Bank was reinforced to cater for the financial needs of the gold mines and the market agents in that sector. Series of bank failures necessitated the dominance of the government bank until Barclays Bank entered the commercial banking industry in South Africa in 1925. The bank later became a purely local entity in 1987 when it transformed into the First National Bank of Southern Africa Limited, now First National Bank (Mostert et al., 2007).

Although the history of commercial banking activities in South Africa dates back to early 1836, the South African Reserve Bank was only established in 1922 (South African Reserve Bank, 2018). The Bank was established by Section 9 of the Currency and Banking Act No. 31 of 1920. The activities of the Bank were underpinned by the South African Reserve Bank Act, 1989 (Act No. 90 of 1989) as amended (South African Reserve Bank, 2018). According to the Bank, the enabling Acts of the Bank have undergone a series of amendments, the latest being the South African Reserve Bank Regulations 2010. These amendments were undertaken to enlarge the brief of the Bank as well as to strengthen the regulatory environment of banking in the country. As at 2014, South Africa boasted the most developed and sophisticated banking industry in Africa.

Apart from a well-functioning banking sector, South Africa has a highly developed and the most sophisticated equity market in Africa. The World Economic Forum's Global Competitiveness Survey for 2013-2014 adjudged the Johannesburg Stock Exchange (JSE) as the best regulated securities exchange in the world. Equity trading began in the country in 1887 when the JSE was

established as a stock exchange. According to Firer and Mcleod (1999), the impact of the mining sector on the equity market was substantial until 1926, and the listing of industrial companies did not add much capitalization until the early 1930s.

Some notable reforms to the South African regulatory environment include the transfer of supervision of banking activities from the Department of Finance (National Treasury) to the South African Reserve Bank in 1987, and the establishment of the Financial Services Board in 1989. Further reforms include the enactment of the Financial Services Board Act 97 of 1990 and the establishment of the Policy Board for Financial Services and Regulation by Act of Parliament in 1993 (Falkena et al., 2001).

Tunisia

Banking activities in Tunisia date back to the pre-political era of the country. Two types of commercial banks exist as informed by their capital structures – either state-controlled or personally/individually-owned. The first commercial bank – the Société Centrale de Banque – was established in 1880 with its headquarters in Tunis. The bank was (as at the time) a local subsidiary of a French commercial bank (Amen Bank, 2018). The bank changed its name to Crédit Foncier d'Algérie et de Tunisie in 1966. To further engender local participation, the Ben Yeder group took over the bank in 1970, and the bank later changed its name to Amen Bank in 1995. The bank benefited from its alignment with the French system as it became the first commercial bank in the country to introduce innovative banking systems (such as telephone and Internet banking). The bank is now the second largest bank in the country (Amen Bank, 2018).

Another commercial bank (Banque de Tunisie) was established in 1884 shortly after the Société Centrale de Banque. It is one of the oldest banks in Tunisia (Oxford Business Group, 2009). The bank is one of the most liquid banks in the country, and maintains strong historical ties with France, with the CIC Group (one of the largest banking groups in France) having more than 20 per cent stake in the bank (Oxford Business Group, 2009). The bank differentiates itself from the other commercial banks as it focuses more on growing its market base with corporate and institutional clientele rather than individual customers.

Tunisia gained political independence from France in 1957 and created two commercial banks in quick succession – Société Tunisienne de Banque (1957) and Banque Nationale Agricole (1959) – to further financial inclusion (Henry and Wilson, 2004). Attijari Bank, a subsidiary of the Moroccan banking group, Attijariwafa Bank, was established in 1968. More significantly, the merger between la Société Marseillaise de Crédit and the then British Bank of the Middle East led to the establishment of Banque International Arabe de Tunisie in Tunisia in 1976. The bank has increasingly grown in its expanse and capitalization and it is one of the leading commercial banks in North Africa. In addition, a joint venture between the Lebanese government, Tunisia's Social Security Fund and the private sector led to the establishment of Banque de l'Habitat in 1977. The bank is increasingly growing its market share in individual and peasant banking sectors.

Apart from the commercial banks in Tunisia, there is also a relatively efficient equity platform in the country. According to Calamanti (1979), the first trading platform in Tunisia (ctiambres de compensation) operated between 1937 and 1945, before it was later replaced with Tunisien de Cotation des Valeurs Mobilières that operated between 1945 and 1970. These platforms were established to challenge the deliberate attempt of French colonial powers to prevent domestic trading in Tunisia. However, no serious trading occurred until the enactment of Law No. 69-13 of 28 February 1969. To address the fragmentation that pervaded the previous trading arrangements in the country, the Bourse des Valeurs Mobilières de Tunis (BVMT) or Bourse de Tunis was established in 1969 in Tunis (Calamanti, 1979). The idea of the stock exchange was particularly driven by the desire of the government to improve domestic savings in the economy. To achieve these savings objectives, the government provided tax breaks to institutional participants on the platform (Ben Ali and Sghaier, 2012).

Initially, the Bourse was controlled by the Minister of Finance through the Comité de la Bourse (Bourse Committee), but that has long changed. The Bourse has low market capitalization and is dominated mainly by the banking sector (Hakimi, Dkhili and Khlaifia, 2012). The low capitalization of the Bourse and its low trading turnover eventually precipitated some reforms, amongst others, the formation of the Financial Market Council in 1994. Since its inception, the Council has presided over a relatively stable capital market. The most recent

initiative of the Council was the ascension of the Bourse to the International Organisation of Securities Commission (IOSCO) in March 2014.

Apart from the specific challenges that confront capital market development in the selected African countries, various generic opinions have been expressed on the causes of low capital market development on the continent. One of the prominent arguments is on the structural impediments that distort the equilibrium position of demand and supply of credit – credit market imperfections (Matsuyama, 2007). Market imperfection refers to the inherent inefficiency in the capability of the market to channel credit to the necessary projects based on their envisaged returns on investment. It occurs when the forces of market imperfection distort the level of equilibrium in the process of capital allocation or financial inclusion.

Some of the notable credit market imperfections are misplaced taxes, high transaction costs (agency problems), and institutional weaknesses (DeGennaro, 2005). These factors influence capital market development in different ways. Taxes lead to market imperfection as they raise not only the cost of capital but also influence the decision to trade financial securities (Matsuyama, 2007). These costs may not necessarily be monetary; they may take the form of compensation packages for corporate executives in order to mitigate agency incentives. In addition, the cost of unfair trading and forced regulatory conformity form a part of the tax considerations in capital investment (DeGennaro, 2005). These costs are largely associated with institutional inadequacy.

4. Methodology

This study focuses on the relationship between institutional efficiency and capital market performance in selected African countries. Various documented studies (Atje and Jovanovic, 1993; Ito, 1999; Levine, Loaya and Beck, 2000; and La Porta, et al., 2000) have used a series of variables in investigating similar relationships. Variables such as the rule of law, corruption perception index, regulatory efficiency, and government policy are popular in the literature. The choice of which variables to include in the estimation is based on the African-specific dynamics, essentially, the availability of data and historical experience of these countries as indicated by the literature (Allen and Ndikumana, 2000). To ensure the robustness of the estimation, the strength of legal framework and

cost of contract enforcement are used as control variables, in line with previous studies (La Porta, et al., 2000; Laeven and Majnoni, 2004).

The econometric technique adopted in this study is a re-modelled institutional efficiency measure provided by Rajan and Zingales (2003). Re-modelling was essential due to the slight divergence in the focus of this study, as well as the type of variables employed. For instance, Rajan and Zingales (2003) focused specific attention on the interplay of supply and demand for capital in consonance with the enabling mechanism, while this study focuses extensively on the interplay between institutional mechanisms and specific capital market components. It must also be pointed out that data availability was not an important consideration in Rajan and Zingales' study, while that consideration influences the choice of variables adopted in this study.

Using annual data that span 1980 to 2016, generated from different sources, (as indicated in Appendix 1) in a balanced panel environment, this study adopts a series of econometric measures to test the proposed relationship. As a test of robustness, a series of pre- and post-diagnostic techniques was adopted and data transformation was also conducted where necessary.

In the re-modelled basic equation, this study forms an index for measuring capital market behaviour (CAPBI) from market capitalization of listed companies (EQCAP) and value of all traded shares in a stock market exchange as a percentage of GDP (TURNOVER). The principal component analysis (PCA) was employed to establish capital market behaviour (CAPBI) and the capital market behaviour index was mathematically determined as:

$$CAPBI = \alpha_0 + \alpha_1 EQCAP + \alpha_2 TURNOVER \quad (1)$$

$$\begin{aligned} CAPBI_{it} = & \psi_{0i} + \psi_{1i} LAWRULE_{it} + \psi_{2i} QLEGAL_{it} + \psi_{3i} CORRUPTION_{it} \\ & + \psi_{4i} POLITY_{it} + \psi_{5i} FDINFL_{it} + \psi_{6i} EXCHANGE_{it} + \psi_{7i} INFLATION_{it} \\ & + \psi_{7i} INFLATION_{it} + \psi_{8i} TRADE_{it} + \psi_{9i} INTERESTRATE_{it} + U_{it} \end{aligned} \quad (2)$$

and $U_{it} = \lambda_i U_{it-1} + \epsilon_{it} \quad (3)$

where:

$$i = 1, 2, \dots, N;$$

$$t = 1, 2, \dots, T,$$

CAPBI = capital market behaviour index,

LAWRULE = rule of law,

QLEGAL = quality of legal system,

CORRUPTION = prevalence and depth of corruption,

POLITY = combined polity score,

FDINFL = net inflow of foreign investment,

EXCHANGE = rate of exchange of domestic currency to US dollar,

INFLATION = annual percentage change in consumer prices,

TRADE = trade openness and

INTERESTRATE = lending rate.

The Ψ_{0i} and γ_{0i} are member specific intercepts (fixed-effect parameters), $\Psi_{5i,t}$ and $\gamma_{5i,t}$ are deterministic time trend specifics to the individual countries in the panel, Ψ_{ki} and γ_{ki} : for $k = 1, \dots, 9$; are slope coefficients and can vary from one country to another, allowing the co-integrating vectors to be heterogenous across countries. The U_{it} and ε_{it} , are stochastic terms across countries and time.

More importantly, equation (2) is used to ascertain the impact of institutions and other macro-economic variables on capital market behaviour in Africa.

4.1 Diagnostic tests

4.1.1 Heteroscedasticity test

One of the basic assumptions of the regression model is that variance of error term should not be influenced by the value of regressors. Thus, it is assumed that there is homoscedasticity, i.e. variance of random term constant at any point. Symbolically:

$$E(v_{it}^2) = \sigma_{it}^2 \text{ for } i \neq j \quad (3)$$

when this assumption in equation (3) is violated, there is a deemed existence of heteroscedasticity, since the variance of random term is not constant. In heteroscedasticity, the variance of the disturbance terms is influenced by the value of the regressors. Thus:

$$\sigma_v^2 = f(Z_{it}) \tag{4}$$

If the scatter diagram of the above equation shows a causal-effect relationship between variance of disturbance term and value of regressors, there is a problem of heteroscedasticity. Thus, this study relaxes the assumption of homoscedasticity of the disturbance term and introduces heteroscedasticity through the v_i (Mazodier and Trognon, 1978; Baltagi, 2008). In a similar study, Mazodier and Trognon (1978) simplified the homoscedastic random effect model (error component model) in which v_i is established heteroscedastic, i.e.

$E(\sigma_v^2, Z_{it}) \neq 0$. Therefore, this study evaluated the presence of heteroscedasticity using Breusch and Pagan Lagrangian Multiplier test, $E(\sigma_v^2, Z_{it}) = 0$ and this test follows the assumption for disturbance term from the least squares regression by \hat{v}_{it} . The test specified that:

$$S_1 = \sum_{i=1}^N \left(\sum_{t=1}^T \hat{v}_{it} \right)^2 \tag{5}$$

$$S_2 = \sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it}^2 \tag{6}$$

Thus, from equation (5) and equation (6), we form equation (7):

$$\lambda = \frac{NT}{2(T-1)} \left(\frac{S_1}{S_2} - 1 \right)^2 \tag{7}$$

where λ is defined as χ^2 distribution with degree of freedom 1. However, since the presumed alternative hypothesis of this test is not one-sided $\sigma_v^2 > 0$ but

merely $\sigma_v^2 \neq 0$, it is assumed to predicate some significant size distortions (Maddala and Lahiri, 2009).

4.1.2 *Auto-correlation (Serial correlation) test*

The serial correlation evaluates the extent to which current value of the component disturbance term rely on its past values. It is symbolically specified as the auto-regressive model, and presented as:

$$v_{it} = \rho v_{it-1} + \xi_{it} \tag{8}$$

The problem of serial correlation in panel data has been analysed by Bhargava, Franzini and Narendranathan (1982), as they depicted in equation (8) where $\xi_{it} \sim IN(0, \sigma^2)$. They define the generalization of the Durbin-Watson (DW) statistic, which is a strong scientific indicator of auto-correlation (serial correlation) for panel data as:

$$d = \frac{\sum_{i=1}^N \sum_{t=1}^T (\hat{v}_{it} - \hat{v}_{it-1})^2}{\sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it}^2} \tag{9}$$

When we expand equation (9) we generate equation (10) as follows:

$$d = \frac{\sum_{i=1}^N \sum_{t=1}^T (\hat{v}_{it}^2 - 2\hat{v}_{it}\hat{v}_{it-1} + \hat{v}_{it-1}^2)}{\sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it}^2} \tag{10}$$

which can also be expressed as depicted in equation (11):

$$d = \frac{\sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it}^2 - 2\sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it}\hat{v}_{it-1} + \sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it-1}^2}{\sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it}^2} \tag{11}$$

Since, $\sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it}^2$ is approximately equal to $\sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it-1}^2$ for large samples

like panel data, it thus becomes logical to suggest that:

$$d = \frac{\sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it}^2 - 2 \sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it} \hat{v}_{it-1} + \sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it-1}^2}{\sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it}^2} \quad (12)$$

which is further simplified through substitutive depiction as equations (12), (13) and (14):

$$d = \frac{2 \sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it}^2 - 2 \sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it} \hat{v}_{it-1}}{\sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it}^2} \quad (13)$$

$$d = \frac{2 \sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it}^2}{\sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it}^2} - \frac{2 \sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it} \hat{v}_{it-1}}{\sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it}^2} \quad (14)$$

If unbounded estimated parameters was allowed for:

$$\text{Let } \rho = \frac{\sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it} \hat{v}_{it-1}}{\sum_{i=1}^N \sum_{t=1}^T \hat{v}_{it}^2} \quad (15)$$

Thus:

$$d = 2 - 2\rho \quad (16)$$

Therefore:

$$d = 2(1 - \rho) \quad (17)$$

The decision rule states that, if there is no serial correlation $\rho = 0$ and $d = 2$, in this case, the null hypothesis (H_0) was accepted that there is no serial correlation of the disturbance terms. If $\rho = -1$, $d = 4$, then there is perfect negative serial correlation. Furthermore, if $\rho = 1$, $d = 0$, there is perfect positive serial correlation, and if $0 < d < 2$, there is some degree of positive serial correlation. It can then be safely suggested that if $2 < d < 4$, there is some degree of negative serial correlation. The implication of this is that the range of values of the Durbin-Watson test statistic is between 0 and 4 ($0 \leq d \leq 4$) along a scalar continuum.

4.1.3 *Generalized method of moments (GMM)*

Most economic issues follow the dynamic oscillation dimension of either time series, cross-section or panel structure. The dynamic relationships are embedded within the presentation of lagged regressand in the regressors (Balestra and Nerlove, 1966; Baltagi and Levin, 1986; Arellano and Bond, 1991; Islam, 1995). Therefore, the dynamic models for this study follow the assumptions of Arellano-Bond estimator. Arellano-Bover estimator was also incorporated, as well as the Blundell-Bond estimator of GMM. Thus, the simplified models are (2) and (3) as specified by Baltagi and Levin (1992), where the estimated capital market behaviour index is:

$$CAPBI_{it} = \Psi_0 + \Psi_{1i}CAPBI_{it-1} + \Gamma_{1it}^1\Psi + \tau_{it} \quad (18)$$

Taking the first difference of equation (18) to reflect the unbiasedness and consistence of the model, we generate:

$$CAPBI_{it} = \Psi_0 + \Psi_{1i}CAPBI_{it-1} + \Gamma_{1it}^1\Psi + \tau_{it} \quad (19)$$

It is important to remember that this study is meant to establish the dynamic relationships that exist between capital market behaviour, institutions (rule of law, quality of legal system, prevalence and depth of corruption and combined polity score) and macroeconomic variables (net inflow of foreign investment, rate of exchange of domestic currency to US dollar, annual percentage change

in consumer prices, trade openness and lending rate) in selected African countries through the estimation process of Arellano and Bond (1991), Arellano and Bover (1995), Blundell and Bond (1998) for generalized method of moments (GMM). These dynamic models are employed to evaluate the effect of institutional framework and macroeconomic variables on capital market efficiency in Africa while controlling for the potential bias due to the endogeneity of some of the regressors, which is the major econometric challenge in panel estimation.

5. Analyses and Results

5.1 Model specification test

The Hausman test is employed to determine the appropriate panel model (fixed or random effect) for estimation of capital market behaviour in selected African countries as depicted in table 1. The Hausman test result shows that the chi-square is 187.17 with the probability value of 0.000.

Table 1. Hausman test

Test	Capital market behaviour model
Chi-square	187.17***
p-value	0.0000

Notes: H_0 : Random effect model is appropriate, H_1 : Fixed effect model is appropriate.

***, ** and * are 1%, 5% and 10% significance level respectively.

Source: Author's computations, 2018.

The findings contained in table 1 suggest that the null hypothesis (H_0) is rejected since the p-value of chi-square is less than 1 per cent significance level (i.e. $0.0000 < 0.01$). Therefore, the fixed effect model is appropriate for the estimation of the capital market behaviour model. Although this approach is considered straightforward to apply, estimation of fixed effects modelling can be expensive in terms of degree of freedom. One of the important considerations here is the assertion of several cross-sectional units, i.e. if $N > T$, where the random effect approach would be considered appropriate (Arellano and Bond, 1991; Baltagi and Levin, 1992; Gujarati and Porter, 2009). But, with the Hausman test suggesting the fixed effect model to be appropriate, the study used

the fixed effect model for policy making for capital market behavioural analysis in Africa.

5.2 Endogeneity test

The endogeneity test results between capital market behaviour index, endogenous variable and net inflow of foreign direct investment and institutional framework indicators are truly exogenous in the panel series using the Durbin chi-square and Wu-Hausman F test (see table 2). The net inflow of foreign direct investment is the true independent variable, and institutional framework indicators (rule of law, quality of legal system, prevalence and depth of corruption and combined polity score) are the valid instrumental variables.

Table 2. Endogeneity Test for Capital Market Behaviour Model

Test	
Durbin (score) $\chi^2(1)$	0.947705 (p = 0.3303)
Wu-Hausman F(1, 215)	0.921758 (p = 0.3381)

Notes: H_0 : variables are exogenous, values in parenthesis is p-value.

***, ** and * are 1%, 5% and 10% significance level respectively

Source: Author's computations, 2018.

Thus, based on the strong qualities of the instrumental variables (rule of law, quality of legal system, prevalence and depth of corruption and combined polity score) as contained in table 2, the model is deemed sufficient for the estimation of capital market behaviour in Africa.

5.3 Fixed and random effect analyses

Table 3 shows the combined empirical results of fixed and random effect estimation for capital market behaviour in Africa. The fixed effect results suggested that there are positive impacts between combined polity score, net inflow of foreign investment, rate of exchange of domestic currency to US dollar, trade openness and lending rate in Africa, which conforms with the economic a priori expectation (La Porta et al., 2000). But, rule of law, quality of legal system, prevalence and depth of corruption and annual percentage change

in consumer prices have negative impacts on capital market behaviour in Africa and negate the economic a priori expectations.

Table 3: Result Analysis for Capital Market Behaviour

Dependent variable: CAPBI

Independent variables	Fixed effect	Random effect
Constant	85.31298** [2.48] (0.014)	115.777*** {5.83} (0.000)
LAWRULE	-52.77716** [-2.47] (0.014)	11.21899 {0.88} (0.380)
QLEGAL	-7.954187 [-0.34] (0.736)	85.69714*** {5.74} (0.000)
CORRUPTION	-26.4418*** [-3.45] (0.001)	-7.317023 {-1.38} (0.169)
POLITY	3.202929*** [4.46] (0.000)	-7.317023 {-1.38} (0.169)
FDINFL	6.848458*** [4.25] (0.000)	7.876118*** {4.12} (0.000)
EXCHANGE	0.0078063 [0.08] (0.939)	-0.4291781*** {-3.77} (0.000)
INFLATION	-0.6579612** [-2.49] (0.014)	0.2086343 {0.67} (0.501)
TRADE	0.634882** [2.26] (0.025)	-0.2300957 {-0.98} (0.326)
INTERESTRATE	5.79e-10 [0.17] (0.867)	-3.64e-09 {-0.81} (0.417)
Total panel observations	222	222
R-square	0.3962	0.2231
F-statistic	15.09*** (0.0000)	-
Wald χ^2 -statistic	-	494.39*** (0.0000)

Notes: Values in parentheses [], { } and () are t-statistic, z-statistic and p-value.

***, ** and * are 1%, 5% and 10% significance level respectively.

Source: Author's computations, 2018.

The results contained in table 3 show that rule of law, prevalence and depth of corruption, combined polity score, net inflow of foreign investment, annual percentage change in consumer prices and trade openness are statistically significant to capital market behaviour at least at 5 percent significance level. But, the quality of legal system, rate of exchange of domestic currency to US dollar, and lending rates are statistically insignificant to capital market behaviour at 10 percent significance level. The overall significance of the regressors (rule of law, quality of legal system, prevalence and depth of corruption, combined polity score, net inflow of foreign investment, rate of exchange of domestic currency to US dollar, annual percentage change in consumer prices, trade openness and lending rate) are evaluated with F-statistic and the result shows that the regressors are jointly significant at 1 percent significance level to capital market behaviour in Africa.

The fitness test of the model revealed that 39.62 per cent of the variations in capital market behaviour in Africa are caused by rule of law, quality of legal system, prevalence and depth of corruption, combined polity score, net inflow of foreign investment, rate of exchange of domestic currency to US dollar, annual percentage change in consumer prices, trade openness, and lending rate. But, 60.38 percent variations in capital market behaviour in Africa are caused by stochastic error terms.. The comparison of the fixed and random effect models show that only net inflow of foreign investment is positive and statistically significant to capital market behaviour at 1 percent significance level in our sample.

5.4 Heteroscedasticity and serial correlation test

The results of the heteroscedasticity and autocorrelation tests of the FEM estimations for capital market behaviour model, using the general least squares technique of contemporaneous correlation in panel data estimation are presented in table 4.

Table 4. Diagnostic test for FEM estimations

Test	Capital market behaviour model
Heteroscedasticity	Homoskedastic
Autocorrelation	No autocorrelation

Note: GLS technique is employed.

Source: Author's computations, 2018.

The result suggests that the capital market behaviour model is free from the possible weakness of heteroscedasticity and autocorrelation problem. The dynamic generalized method of moments (GMM) model is further employed (as contained in table 5) to correct any presence of heteroscedasticity that may possibly bias estimation. This is presented in the next sub-section of the study, as depicted in table 5.

5.5 Generalized method of moments estimation

Table 5 reports the result for the generalized method of moments (GMM) estimation for capital market behaviour in Africa; a one-step technique of GMM estimation was employed. The GMM of Arellano-Bond dynamic panel-data estimation and Arellano-Bover/Blundell-Bond system dynamic panel-data estimation were employed to estimate the short-run coefficients of the lag of capital market behaviour ($CAPBI_{it-1}$), rule of law ($LAWRULE_{it}$), quality of legal system ($QLEGAL_{it}$), prevalence and depth of corruption ($CORRUPTION_{it}$), combined polity score ($POLITY_{it}$), net inflow of foreign investment ($FDINFL_{it}$), rate of exchange of domestic currency to US dollar ($EXCHANGE_{it}$), annual percentage change in consumer prices ($INFLATION_{it}$), trade openness ($TRADE_{it}$) and lending rate ($INTERESTRATE_{it}$) in our sample of selected African markets.

The empirical results of the one-step generalized method of moments (GMM) of Arellano-Bond dynamic panel-data estimation show that lag of capital market behaviour, rule of law, prevalence and depth of corruption, combined polity score, net inflow of foreign investment and trade openness have positive impact on capital market behaviour in our sample. However, quality of legal system, rate of exchange of domestic currency to US dollar, annual percentage change in consumer prices, and lending rate have negative impact on capital market behaviour in this sample of selected capital markets in Africa.

The lag of capital market behaviour, combined polity score, net inflow of foreign investment and rate of exchange of domestic currency to US dollar are statistically significant to capital market behaviour at least at 5 per cent significance level. Conversely, rule of law, quality of legal system, prevalence and depth of corruption, annual percentage change in consumer prices, trade openness, and lending rate are statistically insignificant to capital market behaviour at least at 10 per cent significance level in Africa. The Wald chi-square test reveals that lag of capital market behaviour, rule of law, quality of legal system, prevalence and depth of corruption, combined polity score, net

inflow of foreign investment, rate of exchange of domestic currency to US dollar, annual percentage change in consumer prices, trade openness, and lending rate are jointly significant to capital market behaviour in Africa.

Table 5: Result Analysis for Capital Market Behaviour

Dependent variable: CAPBI

Independent variable	One-step estimation	
	GMM	SGMM
Constant	5.889372 [0.62] (0.537)	23.51668*** [3.00] (0.003)
CAPBI _{it-1}	0.9248605*** [49.41] (0.000)	0.9331594*** [69.36] (0.000)
LAWRULE _{it}	6.663172 [1.13] (0.257)	7.855815* [1.82] (0.069)
QLEGAL _{it}	-4.779873 [-0.74] (0.461)	4.369055 [0.93] (0.354)
CORRUPTION _{it}	0.3250135 [0.15] (0.878)	-2.223932 [-1.41] (0.158)
POLITY _{it}	0.7809372*** [3.45] (0.001)	1.003444*** [4.95] (0.000)
FDINFL _{it}	1.021509** [2.18] (0.029)	1.465527*** [3.47] (0.001)
EXCHANGE _{it}	-0.0744268** [-2.12] (0.034)	-0.0946216*** [-3.07] (0.002)
INFLATION _{it}	-0.1003737 [-1.34] (0.182)	-0.1223946* [-1.66] (0.098)
TRADE _{it}	0.0419834 [0.52] (0.601)	-0.0908898 [-1.31] (0.190)
INTERESTRATE _{it}	-2.78e-11 [-0.03] (0.976)	1.57e-10 [0.18] (0.858)
Number of observations	210	216
Number of groups	6	6
Observations per group	35	36
Number of instruments	202	237
Wald χ^2	43650.00*** (0.0000)	14351.93*** (0.0000)

Notes: Values in parentheses [] and () are z-statistic and p-value.

***, ** and * are 1%, 5% and 10% significance level respectively

GMM: Arellano-Bond dynamic panel-data estimation;

SGMM: Arellano-Bover/Blundell-Bond system dynamic panel-data estimation

Source: Author's computations, 2018

The one-step estimation of system generalized method of moments (SGMM) of Arellano-Bover/Blundell-Bond system shows that lag of capital market behaviour, rule of law, quality of legal system, combined polity score, net inflow of foreign investment and lending rate have positive impact on capital market behaviour in the sample of African markets, whilst prevalence and depth of corruption, rate of exchange of domestic currency to US dollar, annual percentage change in consumer prices, and trade openness have negative impact on capital market behaviour. The results further reveal that lag of capital market behaviour, rule of law, combined polity score, net inflow of foreign investment, rate of exchange of domestic currency to US dollar, and annual percentage change in consumer prices are statistically significant to capital market behaviour at least at 10 per cent significance level.

Conversely, quality of legal system, prevalence and depth of corruption, trade openness, and lending rate are statistically insignificant to capital market behaviour at least at 10 per cent significance level. Furthermore, the Wald chi-square of the SGMM shows that lag of capital market behaviour, rule of law, quality of legal system, prevalence and depth of corruption, combined polity score, net inflow of foreign investment, rate of exchange of domestic currency to US dollar, annual percentage change in consumer prices, trade openness, and lending rate are jointly significant to capital market behaviour at least at 1 per cent significance level in our sample.

6. Conclusion

This study set out to investigate the effect of institutional adequacy on capital market behaviour across four regions in Africa. There is extant literature on the relationship between capital market behaviour and growth, both in advanced and developing economies, however, studies that focus on the relationship between institutional adequacy and capital market behaviour are limited. Furthermore, the absence of studies that incorporate regional dynamics into this form of consideration create an academic lacuna that is filled by this study.

A series of diagnostic measures conducted lend credence to the stability of the findings and the extent of reliability of the policy recommendations of this study. The panel fixed effect and dynamic GMM analyses show that combined polity score as measure of institutional adequacy is positively significant to capital market development in Africa. Since combined polity score is a measure

for general public administration, which has spillover effects on other micro units of institutional measurements, such as rule of law and quality of the regulatory framework, it follows then that efficient macroeconomic management is key to capital market development in Africa. In summary, for Africa's capital markets to develop, it is critical, from the analysis contained in this study, that efficient public sector management must be ensured, perception of (potential) investors on the state of corruption across the continent must also change.

The findings of this study further suggest that the political environment must improve and respect for the rule of law needs to be strengthened. These are critical recommendations emanating from this study, especially considering the implications of political meddling in South Africa's capital market and its lingering negative effects on the country's extant capital market. The same level of interference is evident in Nigeria and in almost all North African countries. In addition, governance issues also stand out as being important. It is therefore essential that African countries ensure efficiency in the management of the macro-economy. This is important as the inflation variable clearly shows through its negative association with capital market development in the estimations.

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